

Radio and Radio Frequency Recommendations for Prescribed Burn Associations

These recommendations are meant to help in the selection of two-way radios, radio frequencies, and whether obtaining a Federal Communications Commission license is best for your Prescribed Burn Association.

Two-Way Radios

Below are recommended radio features and options to consider when selecting two-way radios.

Preferred radio features

- VHF or Dual Band capable (see Frequency Section for further details)
- ≥ 5 -watt power (better range)
- ≥ 6 inch flexible and fixed antenna (better range)
- High quality rechargeable battery, with option for expanded battery pack

Most brand name two-way radios (i.e., Kenwood, Motorola, Icom, Midland, etc) are FCC Part 90 compliant and legal to operate. Baofeng and associated brands are not currently legal to operate under FCC regulations: Use them at your own risk.

Making a radio selection

- Make sure all radios are compatible.
- Two-way radios operate by line of sight. Repeater capable radios can help communicate over complex terrain but require a license to operate.
- Dual push-to-talk might be useful if you expect to operate on two frequencies at once.

- Consider radios that operate with a digital system over an analog system.
- Bendix King Radios have the best power/range but are considerably more expensive than other radios. It may be worth investing in at least one for long-range emergency communication.

Frequencies

VHF frequencies are best suited for outdoor use and are recommended for PBAs. However, expect any frequency to be limited by complex terrain. Regardless of which frequencies are selected, make sure all radios are compatible (i.e., VHF radios cannot communicate with UHF radios).

Types of frequencies

- VHF (Very high frequencies, 136-174 MHz) – requires license, work best over terrain and long distances.
- FRS (Family Radio Service, 462-467 MHz [UHF]) – free to operate but limited to 2-watt power radios.
- GMRS (General Mobile Radio Service, 30 channels in 462-467 MHz [UHF]) – share frequencies with FRS but operate at a higher power and require family and friends license. Channels can be crowded.

Additional thoughts on frequencies

- Ask local volunteer fire departments or Fire Chief associations if they will consider signing a Memorandum of Understanding with the PBA so their frequencies can be used during collaborative operations.
- Consider providing your PBA frequency to your local CAL FIRE unit so it can be included in their annual radio updates.
- Continuous Tone-Coded Squelch System (CTCSS) tones can be used to reduce radio chatter on busy channels.
- Frequencies can be programmed/cloned into radios using CHIRP, a free open-source software.

FCC Licenses

Federal Communications Commission (FCC) licenses allow radio operators to legally operate higher power radios on assigned frequencies or “channels”. The FCC offers two licensing options that can work for PBAs:

- Simplex Business License – allows for radio use within a specified area
- Itinerant Business License – allows for radio use at temporary locations and can only be used with mobile equipment

FCC business class licenses

- Both Simplex and Itinerant business class licenses require the applicant to have a Business Tax ID number or 501(c) status.
- Licenses are currently \$400/ten years (\$300/ten years for non-profits with proof of non-profit status).

- Multiple frequencies can be assigned to each license.
- Count, type, and specification of radios operated under the license have to be listed in the application.
 - Note: List all radios expected to be operated under the license in the initial application. A license can be modified, but at additional expense.
- Radios operated under the license must be FCC Part 90 compliant. It is up to the users to ensure equipment meets requirements and adheres to the specifications of the license.
- GMRS radios cannot be operated under either of these licenses.
- FRS radios can be used with these licenses.
- Applications can be made directly to the FCC or through a radio service provider for a small service fee.
- FCC Resource: <https://www.fcc.gov/wireless/bureau-divisions/mobility-division/industrial-business/industrial-business-licensing>

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